US Army Corps of Engineers
New Orleans District

Louisiana Coastal Area (LCA) ECOSYSTEM RESTORATION

Barataria Basin Barrier Shoreline Restoration Feature
Caminada Headland and Shell Island (CSI) Decision Document

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The Area

The Barataria Basin encompasses the large area of wetlands (almost 2,500 square miles) surrounding Barataria Bay in southeastern coastal Louisiana. It is bordered by the Mississippi River to the north and the east and by Bayou Lafourche to the west. This area is famous not only for being the refuge of the pirate Jean Lafitte but also for being one of the richest and most diverse ecosystems of the entire Louisiana coast. The basin is separated from the Gulf of Mexico by a chain of barrier islands that protects the interior ecosystems from storms and marine influences.

The Problem

Barrier shorelines in Louisiana were created by the delta switching cycles of the Mississippi River. As a delta lobe is abandoned by the river, the sediment is reworked through marine processes first into a barrier headland and then into a barrier island chain. This natural process, called transgression, has been accelerated because of the lack of a significant and continuous source of sediment and nutrients, as well as other factors. As the flow of the Mississippi River changed courses, natural sediment deposition and water flow into this system diminished or ceased. Today, sediment that historically sustained the barrier shorelines is channeled out into the open waters of the Gulf of Mexico. Additional causes of barrier shoreline degradation over the short term include natural disturbances such as tropical storms, land subsidence, and sea-level rise.

The Solution

Coastal restoration in Louisiana is critical not only to our State but also to the entire Nation. The economic and ecologic values of the coast, its ecosystems, and its infrastructure have spawned several collaborative restoration efforts between State and Federal agencies. Subsequent to such efforts as the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) and *Coast 2050: Toward a Sustainable Coastal Louisiana* (the Coast 2050 Plan), the Louisiana Coastal Area (LCA) Ecosystem Restoration Study identifies near-term, critical ecosystem restoration features, as well as potentially promising larger scale, longer term, and more comprehensive restoration concepts in an attempt to reverse the current trend of degradation and loss of Louisiana's coastal wetlands.

The Project

The purpose of the Barataria Basin Barrier Shoreline Restoration feature, Caminada Headland and Shell Island (CSI), is to restore and protect the natural barrier shoreline system in order to support reestablishment of a sustainable ecosystem in the Barataria Basin.

The CSI project is one of the five initial near-term critical restoration features identified in the LCA feasibility study. This restoration feature was considered critical because the barrier shoreline in the Barataria Basin is among those experiencing the highest erosion rate. It is also among the first features to be initiated under the LCA because the relatively advanced levels of investigations already performed in this area provide the potential for construction within the next 10 years.

Caminada Headland is a critical barrier headland on the southwestern edge of Barataria Basin. The project at Caminada Headland may include ecosystem restoration of the dune and shoreline, as well as marsh creation and chenier ridge restoration.

These strategies should maintain the headland without disrupting the natural hydrologic patterns; preserve the integrity of the headland by closing existing breaches; sustain and improve shoreline, dune, and interior marsh habitat quality for fish and wildlife; and provide a natural storm buffer. Restoration of the headland may also help to protect Port Fourchon and local and State highways, including the only hurricane evacuation route in the region.

Shell Island is an eroded barrier island on the southeastern edge of Barataria Basin. The goal is to reestablish an effective barrier between the threatened estuarine ecosystem and the Gulf of Mexico. Restoring the structure of Shell Island could promote the reestablishment of historical patterns of sand transport, thereby supporting the downdrift shorelines to the west and their critical habitats. Restoration of Shell Island should also reduce the current marine influence that has been negatively affecting the marsh and aquatic habitats behind Shell Island. Other benefits of this restoration project may include protection of the nearby navigation channel and oil and gas facilities located along the rim of the inland bays.

The Status

Finalizing the CSI feasibility study is a top priority for the State of Louisiana and the Federal Government. The estimated completion date for the draft feasibility study is December 2005, with the completion of the final feasibility study taking place by May 2006. The completed study will provide the documentation necessary to request construction appropriation in the Administration's 2007 budget.

Engineering tasks to be completed for the feasibility study include verifying previous surveys of Caminada Headland and Shell Island; investigating "borrow sites" (sites from which dredge material is taken for use at the restoration site); and developing alternatives and associated engineering and design.

Environmental tasks include surveying cultural resources and investigating hazardous, toxic, and radioactive waste for Caminada Headland, Shell Island, and the borrow sites.

Economic tasks include performing cost-effective and incremental benefit and cost analyses on the ecosystem benefits to identify the most efficient range of solutions, as well as to qualitatively identify the impacts to ports and navigation, oil and gas infrastructure, and transportation infrastructure.

Real estate tasks include preparing and executing Rights of Entry for environmental and engineering alternatives, as well as identifying and estimating necessary costs to clear any affected oyster leases in the study area.

What's Next

It is crucial to initiate construction of the Caminada Headland and Shell Island restoration project as soon as possible. The first step is to complete the decision document, followed by the preconstruction engineering and design that will lead to construction of the project. Only after the project is built can it begin to increase the natural sustainability of the barrier shoreline system that, in turn, protects the sustainability of the entire Barataria Bay ecosystem.

The LCA project to rebuild and restore Caminada Headland and Shell Island will be constructed, managed, and maintained by the U.S. Army Corps of Engineers and the Louisiana Department of Natural Resources.

Getting Involved

The success of all LCA projects depends upon public participation and support. Public participation and involvement in the planning process are encouraged at all times and are facilitated by public meetings and other outreach and involvement activities implemented by the LCA Public Outreach and Involvement staff. The goal of any LCA study or project is to achieve sustainable and cost-effective coastal restoration that is supported by the public. Please join us in our mission to restore, protect, and preserve the State's and the Nation's invaluable coast.

For more information about the CSI or other LCA studies and projects, other coastal restoration projects, and coastal restoration issues, as well as for contact information, please visit www.LCA.gov.